REMARKS

The Examiner has rejected claims 1 - 3 of the present application under 35 USC 102(e) as being anticipated by Strohmayer et al., (US 6 604 539 B1), by Mills (US 6 655 403 B2), by Duermeier et al., (US 2002/0083974 A1), or by Ehrmann et al. (US 6 557 581 B2).

The Examiner has further rejected claims 4 - 7 under 35 USC 102(e) as being anticipated by Strohmayer et al. or by Mills, and he has rejected claims 8 - 10 under 35 USC 103(a) as being unpatentable over either Strohmayer et al., or Mills in view of Oeffling et al. (US 4 869 283).

Strohmayer et al. (US 6 604 539 B1) discloses a fuel tank for a motor vehicle with an expansion and liquid separation and collection tank disposed in the fuel tank. It is stated in this publication that, in this way, the space requirements for the tank are reduced which is probably correct as no additional space is needed for the expansion tank, although the volume of the fuel tank has to be increased in order to accommodate the expansion tank, if the tank volume is to remain the same.

Mills (US 6 655 403 B2) discloses a fuel vapor venting system for fuel tanks having a saddle-shaped upper wall with a vapor vent disposed in each dome compartment formed by the upper tank wall and a conduit passing below the lowest portion of the upper tank wall and a drain valve installed at the lowest point of the conduit. This arrangement is necessary for this type of tank wherein the top wall is provided with a depression for accommodating a frame section of the vehicle including longitudinal frame members (for example, most pick-ups and many SUVs). The system shown in Mills is furthermore not integrated into the tank but disposed without. It does not include a liquid separation and collection containment.

Duermeier et al. (US 2002/0083974 A1) discloses a ventilation and/or pressure equalizing system for a fuel tank of a motor vehicle with an aeration and/or de-aeration line leanding into the fuel tank via which gases and/or vapors may be removed from, or conducted into, the fuel tank.. The aeration or de-aeration line includes a collection device in an upward ex-

tension of the tank for separating fuel droplets from the venting gases which are discharged via the collection device 4 and the activated carbon filter 6.

Eherman et al. (US 6 557 581 B1) discloses a liquid fuel trap for a vehicle fuel tank which may be used to remove fuel from vent gases.

Oeffing et al. (US 4 869 283) finally discloses a device for trapping fuel vapors during the filling of a fuel tank including a vapor control valve which is opened during a refueling for communication with an activated carbon filter for removing fuel vapors from the venting gas during refueling, and which is closed after refueling has taken place.

As amended claim 1 of the present application defines a fuel tank installation including a fuel tank with an expansion volume, a filler neck extending to fuel tank for refueling the fuel tank, a fill vent line in communication with the fuel tank for venting the fuel tank during refueling and operating vent means for venting the expansion volume of the fuel tank above a maximum fill level of the fuel, wherein the operating vent means include at least one operating vent line extending from at least one expansion volume to a central penetration location and, at the central penetration location, together with the fill vent line through a wall of the fuel tank. The central penetration location includes an annular operating vent chamber which is in communication with the fill vent line and extends around a space forming the inlet end of the fill vent line, which is larger in diameter than the operating vent line in order to be able to accommodate the relatively large vent gas flow occurring during refueling. The operating vent line is connected to the operating vent chamber for venting the operating vent gases during normal operation to the fill vent line, which has a large volume when compared with the operating vent lines and then serves as liquid-gas separation chamber for the vent gases from the operating vent line.

In the arrangement according to the invention, the operating vent lines all lead to the annular operating vent chamber 42 which is provided around the inlet end 40 of the fill vent line in which the float 20 of the float valve 18 is arranged. The annular operating vent chamber 42 is in communication with the fill vent line 16 through which both the operating vent lines and the tank are vented.

In this arrangement, no additional space is needed for an expansion tank for the separation of liquid and vapor fuel components.

The operating vent lines 22, 24, 26 are joined at the inlet end of the fill vent line by the annular operating vent chamber 42 which forms part of the float valve structure 20 disposed in the inlet end of the fill vent line, and from there is in communication with the fill vent line 16 (see Fig. 2).

The separation of liquid and gaseous fuel component occurs in the fill vent line 16, which has a relatively larger diameter relative to the diameter of the operating vent lines 22, 24, 26 and extends from the float valve 18 upwardly to the compensation container 31. "In that case, the fill vent line can form an extension of the operating vent lines and also serve as a degasification volume for the operating vent line" (page 2, lines 30 – 32). The fill vent line must be relatively large anyhow, since s large amount of vent gases are displaced in the tank during refueling and this fill vent line space is used during normal engine operation when it is not needed for venting the fuel tank as fuel separation chamber for the operating vent gases.

It is furthermore noted that Strohmeyer et al. requires a pressure valve for the refueling. Such a valve is not needed for the arrangement according to the invention, where, during refueling, for the selective closing of the connection between the operating venting chamber 42 and the fill vent line 16, the means 56, 58, 60, 62 are provided - see claims 8 and 9 and Fig. 5.

None of the references cited by the Examiner discloses a fuel tank installation in which the operating vent lines are connected to an operating vent chamber which extends annularly around a space forming a the inlet and of the fill vent line and wherein the annular operating vent chamber is in communication with the fill vent line which has a relatively large volume and serves during normal engine operation when it is not needed for venting the tank (during refueling) as a fuel separation chamber.

Claim 1 as amended is therefore clearly novel. However, since the arrangement is not disclosed in any of the cited references as pointed out above, a combination of the cited references cannot possibly lead to the arrangement as defined in claim 1 so that claim 1 is not only novel but is also unobvious.

Reconsideration of claim 1 as amended in respectfully requested.

Claims 2, 3 and 4 define features which are considered to be advantageous in connection with the present invention. These claims are directly or indirectly dependent on claim 1

so that they include all the features of claim 1 and should therefore be patentable together with claim 1. Claims 8 to 10 are also dependent on claim 1 and define furthermore particular blocking means for blocking communication between the operating vent chamber 42 and the fill vent line 16 during refueling.

Specifically, such an arrangement is not disclosed in the cited references either.

In any case, all the dependent claims should already be considered to be patentable because - depending on claim 1 - they include all the features of claim 1.

Reconsideration of the dependent claims 2 to 4 and 8 - 10 is respectfully requested and allowance of claims 1 to 4 and 8 to 10 is solicited.

Concerning the amendment to Fig. 1, it has been noted during review of the application that the numeral 32 had been used for the compensation container (p. 6. line 11) and also for the wall of the tank 10. The compensation container is now designated by the reference numeral 31.

Respectfully submitted,

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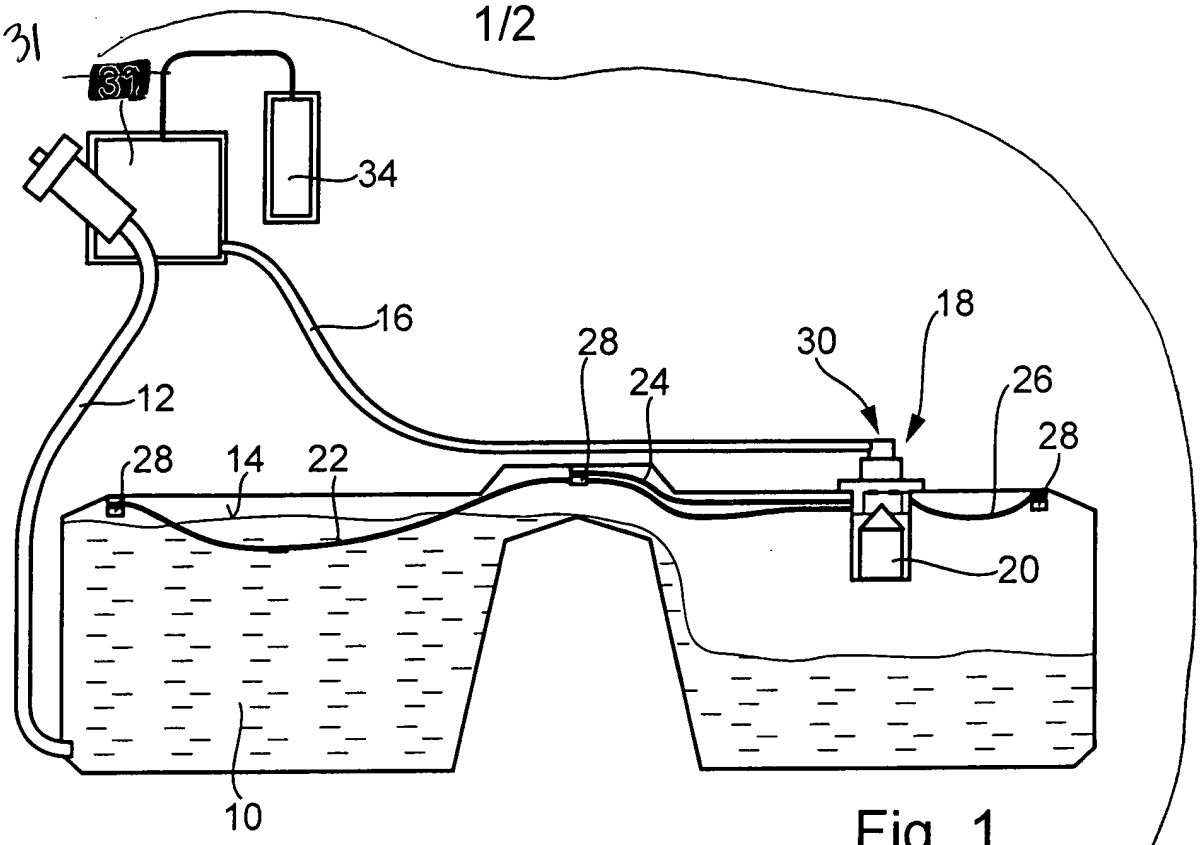

Fig. 1

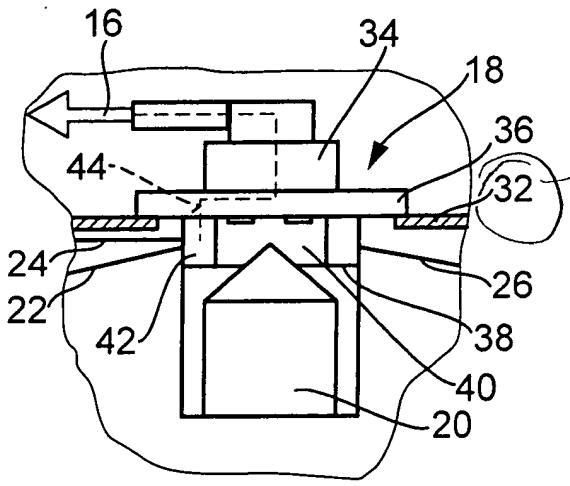

Fig. 2

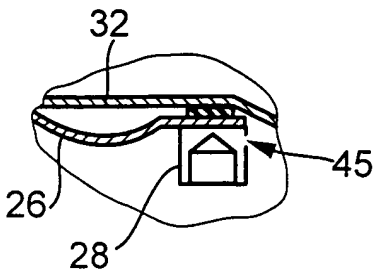

Fig. 3